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10/766,605

Claims: 1-33

1. A viral transcriptional reporter vector comprising:

-a vector backbone derived from a virus of the family Retroviridae;
-a conditional promoter and a first reporter cassette under control of the conditional promoter, wherein said transcriptional reporter vector is packaged in viral particles.

2. The viral transcriptional reporter vector of claim 1, wherein the virus is a lentivirus.

3. The viral transcriptional reporter vector of claim 1, further comprising a constitutive promoter and a second reporter cassette under the control of the constitutive promoter, wherein said first and second reporter cassettes generate distinguishable effects in biological assays.

4. The viral transcriptional reporter vector of claim 3, wherein the reporter cassettes generate fluorescent signals, colorimetric signals, or combinations thereof.

5. The viral transcriptional reporter vector of claim 4, wherein the second reporter cassette is an RFP cassette.

6. The viral transcriptional reporter vector of claim 5, wherein the first reporter cassette comprises a coding region selected from the group consisting of beta-galactosidase coding regions or GFP coding regions.

7. The viral transcriptional reporter vector of claim 1, wherein the first and second reporter cassettes comprise coding regions for two different fluorescent proteins.

8. The viral transcriptional reporter vector of claim 7, wherein the two different fluorescent proteins are GFP and RFP.

9. The viral transcriptional reporter vector of claim 1, wherein the retrovirus-derived backbone is FIV-based.

10. The viral transcriptional reporter vector of claim 1, wherein the retrovirus-derived backbone is derived from HIV, visan-maedi, caprine arthritis-encephalitis virus,

I. 1-24 uncon 435/320.1
II. 25-27 CRU 435/325
III. 28,29 vecus 424/204.1
IV. 30 31-33 KSH 422/61

EIAV, BIV, or SIV.

11. The viral transcriptional reporter vector of claim 1, wherein the constitutive promoter is selected from the group consisting of a histone H4 promoter, a minimal immediately early promoter of cytomegalovirus, a pgk promoter, an EF-1 alfa promoter, and a ubiquitin promoter.

12. The viral transcriptional reporter vector of claim 1, further comprising sequences from the 5' and 3' LTRs of a retrovirus.

13. The viral transcriptional reporter vector of claim 1, further comprising a central polypurine tract of a retroviral polymerase gene.

14. A viral transcriptional reporter vector comprising:

-a lentivirus-derived vector backbone; and
-a conditional promoter comprising one or more pathway-specific response elements and a first reporter cassette under the control of the conditional promoter.

15. The viral transcriptional reporter vector of claim 14, wherein the one or more pathway-specific response elements comprise a p53 binding sequence.

16. The viral transcriptional reporter vector of claim 15, wherein the one or more pathway-specific response elements comprise p53 binding sequences from p21.

17. The viral transcriptional reporter vector of claim 14, wherein the conditional promoter further comprises a minimal immediate early promoter of cytomegalovirus.

18. The viral transcriptional reporter vector of claim 14, further comprising a constitutive promoter and a second reporter cassette under the control of the constitutive promoter.

19. The viral transcriptional reporter vector of claim 18, wherein the reporter cassettes produce colorimetric signals, fluorescent signals, luminescent signals or combinations thereof in cell-based assays.

20. The viral transcriptional reporter vector of claim 18, wherein the first and second

reporter cassettes comprise coding regions for two different fluorescent proteins.

21. The viral transcriptional reporter vector of claim 14, wherein the lentivirus-derived backbone is FIV-based.

22. The viral transcriptional reporter vector of claim 14, wherein the lentivirus backbone is derived from HIV, visan-maedi, caprine arthritis-encephalitis virus, EIAV, BIV, and SIV.

23. The viral transcriptional reporter vector of claim 14, further comprising sequences from the 5' and 3' LTRs of a lentivirus.

24. The viral transcriptional reporter vector of claim 14, further comprising a central polypurine tract of a lentiviral polymerase gene.

25. A reporter cell generated by transduction of a cell with the packaged viral transcriptional reporter vector of claim 1.

26. The reporter cell of claim 25, wherein the viral reporter vector is stably integrated into the reporter cell's genome.

27. The reporter cell of claim 25, wherein the viral transcriptional reporter vector further comprises a constitutive promoter and a second reporter cassette under the control of the constitutive promoter.

28. A packaged virus comprising:

-a viral reporter vector comprising:
-a lentivirus-derived vector backbone; a conditional promoter and a first reporter cassette under the control of the conditional promoter; and
virion proteins.

29. The packaged virus of claim 28, wherein the viral transcriptional reporter vector further comprises a constitutive promoter and a second reporter cassette under the control of the constitutive promoter.

30. A kit comprising:

a viral transcriptional reporter vector comprising:

a lentivirus-derived vector backbone; and

a conditional promoter and a first reporter cassette under the control of the conditional promoter.

31. A kit comprising:

a viral transcriptional reporter vector, comprising:

a lentivirus-derived vector backbone; and

a conditional promoter and a first reporter cassette under control of the conditional promoter, wherein said transcriptional reporter vector is packaged in viral particles .

32. The kit of claim 31, further comprising a packaging plasmid which expresses necessary viral proteins for packaging said transcriptional reporter vector into the viral particles in a packaging cell line.

33.The kit of claim 32, wherein the viral reporter vector further comprises a constitutive promoter and a second reporter cassette under the control of the constitutive promoter.